

Quality Control and Alert/Alarm Limits (version 5.1.2)

The Quality Control and Alert/Alarm Limits window can be used to view and edit quality control and alert/alarm parameters for data flowing into HydroBase. The user can access this display from the **Root Window** in HydroBase by clicking on the **DataIngest** pull down menu. Click on **QC/Alert/Alarm Limits**. The display will automatically be in default mode. The defaults will display Physical Elements and their limits in the table.

HydroBase on hds.12hvx@ONLINE

File Location RiverGage Reservoir Dam Catalog Data Ingest | Reports Setup Help

Ingest Filter...
QC/Alert/Alarm Limits...
Purge Parameters...

Station	Name	State/County	Basin	Stream
1H3	CHURCHVILLE	MD, HARRIS	CHESAPEAKE-01	
1H4	RIDGELY AIRPARK	MD, CAROLINE	CHESAPEAKE-01	
1H3	PHILLIPSBURG	PA, CLEARFIELD		
1H5	ELDERSBURG	MD, CARROLL	PATAPSCO-03	
2G4	OAKLAND	MD, GARRETT	YOUNGHOHENRY-07	
2G9	SOMERSET COUNTY AIRP	PA, SOMERSET	YOUNGHOHENRY-07	
2H0	ELKTON	MD, CECIL	SESQUEHANNA-06	
2H5	INDIAN HEAD	MD, CHARLES	POTOMAC-05	
2H6	LEONARDTOWN	MD, ST. MARYS	CHESAPEAKE-01	
3J3	DOVER-DEL AIRPARK	DE, KENT		
3H09	HAVRE DE GRACE	MD, HARRIS	SUSQUEHANNA-06	
7H4	DUMFRIES	VA, LOUISA		
8H2	NEW MARKET	VA, SHENANDOAH	SHENANDOAH-16	
8H8	SOMERVILLE	VA, FAUQUIER	POTOMAC-05	
ABCD	ABINGDON	MD, HARRIS	CHESAPEAKE-01	
ABRD	ABERDEEN	MD, HARRIS	CHESAPEAKE-01	
ACDT	ACACIOT	MD, GARRETT	YOUNGHOHENRY-07	
AFTN	AFTON MOUNTAIN	VA, NELSON	JAMES-09	
AFTW	AFTON MOUNTAIN	VA, NELSON	JAMES-09	
ALB0	ALEXANDRIA	VA, FAIRFAX	POTOMAC-05	
ALEX	ALEXANDRIA	VA, FAIRFAX	POTOMAC-05	
ALXV	ALEXANDRIA	VA, FAIRFAX	POTOMAC-05	
AMV2	ARLINGTON	VA, RAPPAHANNOCK	RAPPAHANNOCK-14	
ANAP	ANNAPOLIS	MD, ANNE ARUNDEL	CHESAPEAKE-01	
ANEL	ANNAPOLIS	VA, FAIRFAX	POTOMAC-05	
ANR0	ANNAPOLIS	MD, ANNE ARUNDEL	CHESAPEAKE-01	
ANR2	ANNAPOLIS	VA, FAIRFAX	POTOMAC-05	
ANP	ANNAPOLIS AIRPORT	MD, ANNE ARUNDEL	CHESAPEAKE-01	
A00	ALTOONA	PA, BLAIR		

Filter by Service Backup ☒ Show SHEL Post
(623 Stations) ☐ Show SHEL No Post Sort By: Station Station Search:

Limits

List: Default Limits Filter By: Location PhysElem

Notes:

- 1) Changes to non-ROC limits take effect when SHEL decoder restarted.
- 2) Individual check is not performed if the limit value is not defined.
- 3) If limits defined for location, default limits not considered even if location limits are undefined.

Location	PE	Dur	Start	End	Gross Min	Gross Max	Reasonable Min	Reasonable Max	Rate Of Change	Alert Limit	Alert ROC	Alarm Limit	Alarm ROC
HG	0	01/01	12/31		-1000.0	15000.0							
HP	0	01/01	12/31		-1000.0	15000.0							
HT	0	01/01	12/31		-1000.0	15000.0							
PP	1	01/01	12/31		0.0	5.0							
PP	15	01/01	12/31		0.0	10.0							
PP	30	01/01	12/31		0.0	20.0							
PP	1001	01/01	12/31		0.0	30.0							

Limits For Selected Item

Location: PhysElem: Quality Control Limits: Min Max

Gross Range: -1000.00 15000.00

Reasonable Range: Units/Hour

Rate Of Change (ROC): Alert Alarm

Value: ROC:

Ok Apply Cancel New Delete

Important Note: ANY CHANGES TO QUALITY CONTROL AND/OR ALERT/ALARM LIMITS REQUIRE THE SHEFDECODER TO BE STOPPED AND RESTARTED.

The user can change the defaults to locations at the **List:** option. Choosing **Location Limits**, will allow the user to view locations that have quality control and/or alert/alarm parameters set up. The information is displayed in a table in the middle of the window. Later we will discuss the table in more details. It is important to have **Location Limits** option on so the user can view/edit/create location-specific limits within this window.

Quality Control and Alert/Alarm Limits

Limits

List: **Location Limits** Filter By: ☐ Location ☐ PhysElem

Notes:

- 1) Changes to non-ROC limits take effect when SHEF decoder restarted.
- 2) Individual check is not performed if the limit value is not defined.
- 3) If limits defined for location, default limits not considered even if location limits are undefined.

AD Reserved
AF Sfc Frost Intensity
AG Percent Green Veg
AH Sfc Dew Intensity
AT Time Below 25 deg F
AD Time Below 32 deg F
AH Leaf Wetness Time

Location	PE	Dur	Start	End	Gross		Reasonable		Rate Of Change	Alert		Alarm	
					Min	Max	Min	Max		Limit	ROC	Limit	ROC
BRKM2	HG	0	01/01	12/31	-10.0	30.0	0.0	23.0	3.0				
BRKM2	TH	0	01/01	12/31	-40.0	100.0	0.0	85.0					
SPRM2	HG	0	01/01	12/31	-10.0	30.0	0.0	20.0	3.0	8.0	3.0	12.0	1.0
STGV2	HG	0	09/09	09/10	1.5	200.0							

Limits For Selected Item

Location: **BRKM2**

Duration: **Instantaneous (0)**

Start MM/DD: **01/01**

End MM/DD: **12/31**

Physical Element:

- HG River Stage
- HH Reading Height - MSL
- HI Stage Trnd Indicator
- HJ Spillway Gate Height
- HK Lake Elev Abv Datum
- HL Lake Elevation
- HM Tide Height
- HO Flood Stage Height
- HP Pool Elevation
- HQ Distance to River
- HR Reservoir Rule Elev
- HS Spillway Forebay Elev

Quality Control Limits:

Gross Range: **-10.00** **30.00**

Reasonable Range: **0.00** **23.00**

Rate Of Change (ROC): **3.00** Units/Hour

Alert/Alarm Limits:

Alert: **Value:** **ROC:**

Alarm: **Value:** **ROC:**

Ok Apply Cancel New Delete

The **Filter By:** option filters the display list by location or physical element. This can help the user narrow the search. The user can checkmark **Location** and type in a specific location id to show the limits for that location in the table.

Quality Control and Alert/Alarm Limits

Limits

List: **Filter By:** ☒ Location ☐ PhysElem

Notes:

- 1) Changes to non-ROC limits take effect when SHEF decoder restarted.
- 2) Individual check is not performed if the limit value is not defined.
- 3) If limits defined for location, default limits not considered even if location limits are undefined.

Location	PE	Dur	Start	End	Gross Min	Gross Max	Reasonable Min	Reasonable Max	Rate Of Change	Alert Limit	Alert ROC	Alarm Limit	Alarm ROC
BRKM2	HG	0	01/01	12/31	-10.0	30.0	0.0	23.0	3.0				
BRKM2	TH	0	01/01	12/31	-40.0	100.0	0.0	85.0					

Limits For Selected Item

Location:

Duration:

Start MM/DD:

End MM/DD:

Physical Element:

- HG River Stage
- HH Reading Height - MSL
- HI Stage Trnd Indicator
- HJ Spillway Gate Height
- HK Lake Elev Abv Datum
- HL Lake Elevation
- HM Tide Height
- HO Flood Stage Height
- HP Pool Elevation
- HQ Distance to River
- HR Reservoir Rule Elev
- HS Spillway Forebay Elev

Quality Control Limits:

Gross Range:

Reasonable Range:

Rate Of Change (ROC): Units/Hour

Alert/Alarm Limits:

Alert Value: Alert ROC:

Alarm Value: Alarm ROC:

Ok Apply Cancel New Delete

Another way to filter the search is to checkmark **PhysElem** to display the physical elements. The user can scroll down and highlight a physical element to display. The table will display all locations for that particular physical element as long as *Location* is unchecked.

Quality Control and Alert/Alarm Limits

Limits

List: Filter By: ☐ Location ☒ PhysElem

Notes:

- 1) Changes to non-ROC limits take effect when SHEF decoder restarted.
- 2) Individual check is not performed if the limit value is not defined.
- 3) If limits defined for location, default limits not considered even if location limits are undefined.

Location	PE	Dur	Start	End	Gross Min	Gross Max	Reasonable Min	Reasonable Max	Rate Of Change	Alert Limit	Alert ROC	Alarm Limit	Alarm ROC
BRKM2	HG	0	01/01	12/31	-10.0	30.0	0.0	23.0	3.0				
SPRW2	HG	0	01/01	12/31	-10.0	30.0	0.0	20.0	3.0	8.0	3.0	12.0	1.0
STGV2	HG	0	09/09	09/10	1.5	200.0							

Limits For Selected Item

Location:

Duration:

Start MM/DD:

End MM/DD:

Physical Element:

- HG River Stage
- HH Reading Height - MSL
- HI Stage Trnd Indicator
- HJ Spillway Gate Height
- HK Lake Elev Abv Datum
- HL Lake Elevation
- HM Tide Height
- HO Flood Stage Height
- HP Pool Elevation
- HQ Distance to River
- HR Reservoir Rule Elev
- HS Spillway Forebay Elev

Quality Control Limits:

Gross Range:

Reasonable Range:

Rate Of Change (ROC): Units/Hour

Alert/Alarm Limits:

Alert:

Alarm:

Value:

ROC:

Ok Apply Cancel New Delete

If the user checkmarks both **Location** and **PhysElem** this will display the limits with that particular physical element, for that particular location. This really narrows the search.

The header of the table displays the following information:

Location - location id

PE - physical element

Dur - duration code

Start - start date (mm/dd)

End - end date (mm/dd)

Gross Min and Max - minimum and maximum values for gross range check

Reasonable Min and Max - minimum and maximum values for reasonable range check

Rate Of Change - value for rate-of-change, unit per hour (ROC)

Alert Limit and ROC - values set for alert limit and rate-of-change

Alarm Limit and ROC - values set for alarm limit and rate-of-change

Quality Control and Alert/Alarm Limits

Limits

List: Filter By: ☒ Location ☒ PhysElem

Notes:

- 1) Changes to non-ROC limits take effect when SHEF decoder restarted.
- 2) Individual check is not performed if the limit value is not defined.
- 3) If limits defined for location, default limits not considered even if location limits are undefined.

Location	PE	Dur	Start	End	Gross Min	Gross Max	Reasonable Min	Reasonable Max	Rate Of Change	Alert Limit	ROC	Alarm Limit	ROC
BRKM2	HG	0	01/01	12/31	-10.0	30.0	0.0	23.0	3.0				

Limits For Selected Item

Location: Physical Element:

Duration:

Start MM/DD: End MM/DD:

Quality Control Limits:

Gross Range:

Reasonable Range:

Rate Of Change (ROC): Units/Hour

Alert/Alarm Limits:

Alert:
ROC:

Alarm:
ROC:

Ok Apply Cancel New Delete

Limits for Selected Item section is below the table. Here the user can edit existing limits and create new ones. The user must have the above **Location Limits** clicked on for the **List:** or it won't show location information below. Highlighting an entry in the table will result in the **Limits for Selected Item** section to be filled in with values. The user may then edit the existing information. If a user wants to add a new location to the list, he/she first needs to click on the **New** button at the bottom of the window. This action will clear all the boxes in the **Limits for Selected Item** section, allowing the user to enter the new information.

In setting up a new site the user needs to type in the blank box **Location:** the location id. Then the user needs to choose a duration code. To do this, click on the box next to **Duration:** and highlight the desired code. Next, the user can type in the month and day for the **Start MM/DD:** and **End MM/DD:** time period. This helps if the user wants data quality control and/or alert/alarm during a certain time period and not the whole year. The user can do a whole year by defaulting to **Start MM/DD: 01/01** and **End MM/DD: 12/31**. The **Physical Element:** list allows the user to highlight the PE that will be monitored under QC and alert/alarm limits.

Quality Control and Alert/Alarm Limits

Limits

List: **Location Limits** Filter By: ☐ Location ☐ PhysElem

Notes:

- 1) Changes to non-ROC limits take effect when SHEF decoder restarted.
- 2) Individual check is not performed if the limit value is not defined.
- 3) If limits defined for location, default limits not considered even if location limits are undefined.

Location	PE	Dur	Start	End	Gross Min	Gross Max	Reasonable Min	Reasonable Max	Rate Of Change	Alert Limit	ROC	Alarm Limit	ROC
BRKM2	HG	0	01/01	12/31	-10.0	30.0	0.0	23.0	3.0				
BRKM2	TW	0	01/01	12/31	-40.0	100.0	0.0	85.0					
SPRW2	HG	0	01/01	12/31	-10.0	30.0	0.0	20.0	3.0	8.0	3.0	12.0	1.0
STGV2	HG	0	09/09	09/10	1.5	200.0							

Limits For Selected Item

Location: **SPRW2**

Duration: **Instantaneous (0)**

Start MM/DD: **01/01**

End MM/DD: **12/31**

Physical Element:

- HG River Stage
- HH Reading Height - MSL
- HI Stage Trnd Indicator
- HJ Spillway Gate Height
- HK Lake Elev Abv Datum
- HL Lake Elevation
- HM Tide Height
- HO Flood Stage Height
- HP Pool Elevation
- HQ Distance to River
- HR Reservoir Rule Elev
- HS Spillway Forebay Elev

Quality Control Limits:

Gross Range: Min **-10.00** Max **30.00**

Reasonable Range: Min **0.00** Max **20.00**

Rate Of Change (ROC): **3.00** Units/Hour

Alert/Alarm Limits:

Alert Value: **8.00** Alarm Value: **12.00**

ROC: **3.00** **1.00**

Ok Apply Cancel **New** Delete

Within the **Quality Control Limits** the user has the following to work with in setting limits. The **Gross Range** is used for quality control. It rejects data outside the minimum and maximum values the user sets. Data rejected by the *Gross Range Check* is not available for use in the other applications. This range mostly rejects outliers and flagged data.

The **Reasonable Range** fine tunes the data quality. The data between the minimum and maximum will represent the physical element's expected values. Data which falls outside the *Reasonable Range*, but within the *Gross Range* will be flagged as questionable, and will still be used by other applications.

The **Rate-of-Change (ROC)** has a value set by the user that is units per hour. The ROC does not identify type source. This means the user can not set a ROC limit for DCP data and not for phone data at the same site. The ROC limit is set for all data that comes in for that one site. ROC is an absolute value, that is, it represents data either rising or falling. Data which exceeds the ROC quality control limit is flagged as questionable and is available for use in other applications.

In the **Alert/Alarm Limits** the user can type in the **Value:** boxes the values for alerts and alarms. The **ROC:** boxes are for the rate of change (units per hour) of the alert and the alarm. If alert/alarm criteria are exceeded the system can be setup such that a product is written to the AWIPS text database. The text database can be setup to alarm a recipient of that product. (See details in the run_report_alarm)

Quality Control and Alert/Alarm Limits

Limits

List: **Location Limits** Filter By: ☐ Location ☐ PhysElem

Notes:

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Location	PE	Dur	Start	End	Gross		Reasonable		Rate Of Change	Alert		Alarm	
					Min	Max	Min	Max		Limit	ROC	Limit	ROC
BRKH2	HG	0	01/01	12/31	-10.0	30.0	0.0	23.0	3.0				
BRKH2	TH	0	01/01	12/31	-40.0	100.0	0.0	85.0					
SPRW2	HG	0	01/01	12/31	-10.0	30.0	0.0	20.0	3.0	8.0	3.0	12.0	1.0
STGV2	HG	0	09/09	09/10	1.5	200.0							

AD Reserved
AF Sfc Frost Intensity
AG Percent Green Veg
AH Sfc Dew Intensity
AT Time Below 25 deg F
AU Time Below 32 deg F
AV Leaf Wetness Time

Limits For Selected Item

Location: **SPRW2**

Duration: **Instantaneous (0)**

Start MM/DD: **01/01**

End MM/DD: **12/31**

Physical Element:

- HG River Stage
- HH Reading Height - MSL
- HI Stage Trnd Indicator
- HJ Spillway Gate Height
- HK Lake Elev Abv Datum
- HL Lake Elevation
- HM Tide Height
- HO Flood Stage Height
- HP Pool Elevation
- HQ Distance to River
- HR Reservoir Rule Elev
- HS Spillway Forebay Elev

Quality Control Limits:

Gross Range: **Min** -10.00 **Max** 30.00

Reasonable Range: **Min** 0.00 **Max** 20.00

Rate Of Change (ROC): **3.00** Units/Hour

Alert/Alarm Limits:

Alert Value: **8.00** **12.00**

ROC: **3.00** **1.00**

Ok Apply Cancel New Delete

Last, is a row of buttons at the bottom of the window. They are:

OK - which accepts changes and then exits the window

Apply - accepts changes and remains in the window to continue to be used

Cancel - cancel (does not save) changes and exits the window

New - allows the user to create a new site with (quality control and alert/alarm) limits and can add new rows of other PEs to an already existing site

Delete - deletes a highlighted row in table

Quality Control and Alert/Alarm Limits

Limits

List: Filter By: ☐ Location ☐ PhysElem

Notes:

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AT Time Below 25 deg F
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Location	PE	Dur	Start	End	Gross		Reasonable		Rate Of Change	Alert		Alarm	
					Min	Max	Min	Max		Limit	ROC	Limit	ROC
BRKM2	HG	0	01/01	12/31	-10.0	30.0	0.0	23.0	3.0				
BRKM2	TW	0	01/01	12/31	-40.0	100.0	0.0	85.0					
SPRW2	HG	0	01/01	12/31	-10.0	30.0	0.0	20.0	3.0	8.0	3.0	12.0	1.0
STGV2	HG	0	09/09	09/10	1.5	200.0							

NEW Item

Location:

Duration:

Start MM/DD:

End MM/DD:

Physical Element:

AD Reserved
AF Sfc Frost Intensity
AG Percent Green Veg
AH Sfc Dew Intensity
AT Time Below 25 deg F
AU Time Below 32 deg F
AW Leaf Wetness Time
BA Water Equiv, Solid
BB Heat Deficit
BC Liquid Water Storage
BD Temperature Index
BE Max Water Equiv

Quality Control Limits:

Gross Range: Min Max

Reasonable Range: Min Max

Rate Of Change (ROC): Units/Hour

Alert/Alarm Limits:

Alert: Value:

Alarm: ROC: